



PATENT  
Customer No. 22,852  
Attorney Docket No. 5725.0398-00

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Roland DE LA METTRIE et al.

Application No.: 09/319,204

CPA Filed: July 17, 2001

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Group Art Unit: 1751

Examiner: M. Einsmann

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For: COMPOSITION FOR THE OXIDATION DYEING OF KERATIN FIBERS  
AND DYEING PROCESS USING THIS COMPOSITION (AMENDED)

Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**DECLARATION UNDER 37 C.F.R. 1.132**

I, Grégory PLOS, declare and state that:

1. I am a French citizen, residing at 5 passage du chemin vert 75011, Paris, France.
2. I have been awarded a degree in Chemical Engineering from the Institut National Agronomique de Paris-Grignon.
3. I have been employed by L'ORÉAL since 1997 and I am presently a Research Engineer in the Hair Dyeing Applied Research Department at L'ORÉAL. During my employment at L'ORÉAL, I have been engaged in applied research and development regarding hair dyeing and compositions for the treatment of hair.
4. Given my education and experience, particularly in the area of hair dyeing and compositions for the treatment of hair, I consider myself able to provide the

following testimony based on the following additional experiments for the U.S.

Application No. 09/319,204 conducted by me or under my direct supervision.

### COMPARATIVE TESTING

5. Comparative testing was performed with inventive compositions B and D and comparative compositions A and C.

#### I. Compositions

The formulations of compositions A, B, C, and D are summarized in the following Table 1. Comparative compositions A and C contain a para-phenylenediamine, a para-aminophenol, a meta-aminophenol, 2-amino-2-methylpropan-1-ol, and demineralized water. Inventive compositions B and D contain the same ingredients, in addition to uricase and uric acid.

Table 1

	Composition A (comparative)	Composition B (inventive)	Composition C (comparative)	Composition D (inventive)
N,N-bis( $\beta$ -hydroxyethyl)-p-phenylenediamine sulfate	$3 \times 10^{-3}$ mole	$1.5 \times 10^{-3}$ mole	--	--
2-( $\beta$ -hydroxyethyl)-p-phenylenediamine dihydrochloride	--	--	$3 \times 10^{-3}$ mole	$1.5 \times 10^{-3}$ mole
4-amino-3-methyl phenol	$3 \times 10^{-3}$ mole	$1.5 \times 10^{-3}$ mole	$3 \times 10^{-3}$ mole	$1.5 \times 10^{-3}$ mole
2-methyl-5-amino phenol	$6 \times 10^{-3}$ mole	$3 \times 10^{-3}$ mole	$6 \times 10^{-3}$ mole	$3 \times 10^{-3}$ mole
Uricase from Arthrobacterglobiformis at 20 International Units (I.U.)/mg, sold by Sigma	--	1 gram	--	1 gram
Uric acid	--	1 gram	--	1 gram
2-amino-2-methylpropan-1-ol, q.s.	pH 8.5	pH 8.5	pH 8.5	pH 8.5
demineralized water, q.s.	100 grams	100 grams	100 grams	100 grams

## II. Dyeing Process

At the time of use, compositions A and C were mixed with an equal weight of one volume of 0.3% by weight aqueous hydrogen peroxide solution. Each of the mixtures A-D was then applied to locks of natural or permed gray hair containing 90% white hair. After 30 minutes at room temperature, the hair was rinsed, dried, and the chromaticity was determined using standard methods.

## III. Color Determination

The color of the hair was determined by using the L\*a\*b\* system, with a MINOLTA CM3600d ® spectrophotometer.

According to this system, L\* indicates the lightness of the color of the hair. The chromaticity is expressed by the parameters a\* and b\*, a\* indicating the axis of green/red shades and b\* the axis of yellow/blue shades. The chromaticity value, C\*, is calculated from the formula:

$$C^* = \sqrt{(a^{*2} + b^{*2})}$$

The higher the value of C\*, the more chromatic is the resulting hair color. The results of these comparative tests are shown in Table II below.

Table II

	Hair Type	L*	a*	b*	C*
Composition A	Natural	37.5	6.5	6.0	8.9
Composition A	Permed	27.9	5.9	3.5	6.9
Composition B	Natural	41.7	11.0	8.1	13.6
Composition B	Permed	32.3	10.6	3.6	11.2
Composition C	Natural	43.6	10.2	15.0	18.2
Composition C	Permed	39.9	11.7	16.7	20.4
Composition D	Natural	40.7	16.9	13.0	21.3
Composition D	Permed	34.8	19.9	13.9	24.3

The results in Table II show that compositions using the enzymatic oxidation dyeing system according to the present invention, Compositions B and D, unexpectedly provide colorations that are more chromatic than those obtained with the compositions using an oxidizing agent comprising hydrogen peroxide according to U.S. Pat. No. 5,514,188.

6. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 17/03/2003

By: PLOS Grégory  
PLOS, Gregory